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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/713,453	11/14/2003	Patrick L. Von Behren	2003P05219US	9643

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SIEMENS CORPORATION  
INTELLECTUAL PROPERTY DEPARTMENT  
170 WOOD AVENUE SOUTH  
ISELIN, NJ 08830

EXAMINER
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LAMPRECHT, JOEL

ART UNIT	PAPER NUMBER
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3737

MAIL DATE	DELIVERY MODE
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04/01/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/713,453	<b>Applicant(s)</b> VON BEHREN ET AL.	
	<b>Examiner</b> JOEL M. LAMPRECHT	<b>Art Unit</b> 3737	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 December 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 4, 6-13, 15-21, and 24-31 rejected under 35 U.S.C. 103(a) as being unpatentable over Kaufman et al (US 7,295,693 B2) in view of Paxman et al (US 5,627,363). Kaufman et al disclose the identification of phases of intensity data relative to the heart cycle for a multitude of spatial locations in multiple image frames (Col 2 Line 65- Col 3 Line 55, Col 13 Line 55-Col 14 Line 37), display the data on a data screen (Figure 2, 4, 5 Col 6 Line 10-45), including 3-d renderings (Col 7 Line 40-Col 8 Line 16), and locate regions of interest with respect to the phase of the data in multiple locations

Art Unit: 3737

and of multiple phases (Col 14 Line 33-Col 15 Line 39. Kaufman et al also disclose sinusoidal matching via Fourier transform, identification of fundamental frequency (Col 14-Col 16), including methods of normalization and filtering, the formation of local intensity profiles at selected regions where the phase is of a certain value and the intensity (Figure 13, Col 14 Line 38-Col 15 Line 9) can be chosen to be transformed into a spatial domain and displayed (filtering, normalization; Col 14 Line 55-Col 6 Line 60). Automated boundary detection of isolated information and tracking is also disclosed including the use of the amplitude or phase of the data for locating specific boundary conditions (Fig 10-12, Col 13 Line 55 – Col 14 Line 37, Col 15 Line 1-57). Images can be selected based on the differing phases and separated as such, and combinations of cycles of measurements are used and combined to provide the “best” representation of the cycle (Col 16 Line 49- Col 18 Line 15, Col 10 Line 50 - Col 13 line 28).

Kaufman et al do not disclose the use of alternative frequency components aside from the fundamental and do not disclose phase retrieval for the same. Attention is then directed to the teaching reference to Paxman et al which discloses narrowband frequency identification to identify multiple frequency components and phase angles of acoustic data non-invasively (Col 3 Line 50-65) for image mapping. Intensity information is normalized after an impulse response phase-retrieval is performed on parallel frequency illuminated response data (Col 7 Line 9-25, Col 3 Line 65-Col 6 Line 20). It would have been obvious to one of ordinary skill in the art at the time of the invention to have applied the processing principles of Paxman et al for phase retrieval of

Art Unit: 3737

acoustic intensity data to the methods of Kaufman et al for the purpose of reducing noise in an image of complex reflectivity of a waveform.

Claims 2, 3, 5, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaufman et al in view of Paxman et al and in further view of Phillips (6,210,334 B1). Kaufman et al in view of Paxman et al disclose all that is listed above, but fail to mention the use of B-mode images, though ultrasound data is mentioned and fail to mention the use of contrast agents for data acquisition. Attention is then directed to the secondary reference by Phillips which discloses the use of B-mode data (Col 4 Line 30-Col 5 Line 4), harmonic isolation (Col 3 Line 59-Col 4 Line 18) from fundamental frequency components as well as contrast agent-based acquisition (Col 3 Line 40 – Col 4 Line 18). It would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized the data analysis methods of Kaufman et al in view of Paxman et al with the acquisition and processing of Phillips for the purpose of isolating specific data components during a diagnostic procedure.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kaufman et al in view of Chiang et al. (6,969,352). Kaufman et al. disclose all that is listed above but do not mention synchronizing their method with a pacemaker or highlighting movement of a mechanical heart contraction wave during a heart cycle. Attention is then directed to the secondary reference by Chiang et al, in the same field of endeavor, which suggests such an ultrasonic imaging system for pacemaker monitoring, or artificial heart device implantation (Col 4 Lines 43 – 63). It would have been obvious to one having normal skill in the art at the time of the invention to use the

Art Unit: 3737

method of pacemaker monitoring ultrasound of Chiang et al, with the highlighting movement of a heart contraction during the physiological cycle as disclosed by Kaufman et al. due to the fact that implanted or artificial devices require the same attention as natural human hearts and provide the same if not worse possibility for "sickness" or failure.

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-31 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOEL M. LAMPRECHT whose telephone number is (571)272-3250. The examiner can normally be reached on Monday-Friday 8:30AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian L. Casler can be reached on (571)272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3737

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JML

/BRIAN CASLER/

Supervisory Patent Examiner, Art Unit 3737